

# COAL MINING

UNIVERSITY MICROFILMS  
313 N 1ST ST  
ANN ARBOR, MICH

October, 1959

Volume 36, No. 10

rugged equipment for tough jobs...



Allis-Chalmers HD-21 at C & K Coal Co., West Freedom

A-988A

*Highway*



**HIGHWAY EQUIPMENT COMPANY**

6465 Hamilton Ave. • Pittsburgh 6, Pa.  
40 Hoover Ave. • Du Bois, Pa.

# Signs of the Safest Buys in USED EQUIPMENT



Only a Caterpillar\* Dealer like Beckwith Machinery Company offers you such a safe investment when you buy used earthmoving equipment. You know what you are getting from Beckwith . . . honest dollar value . . . profit-producing tools in the price bracket in which you want to invest.



We will give you a Guarantee Bond of up to \$10,000, assuring you of satisfactory performance of all parts for 30 days when you purchase a used "Bonded Buy" Cat-built machine. Beckwith's bond is backed by a master bond issued by Lumberman's Mutual Casualty Co.



Our "Certified Buy" covers units of any make, in good condition. This type of protection includes Beckwith's written guarantee of satisfactory performance.



Don't overlook some of our best used equipment bargains just because they carry low price tags. Beckwith's "Buy and Try" classification is also well protected. It carries a written "money-back" agreement.

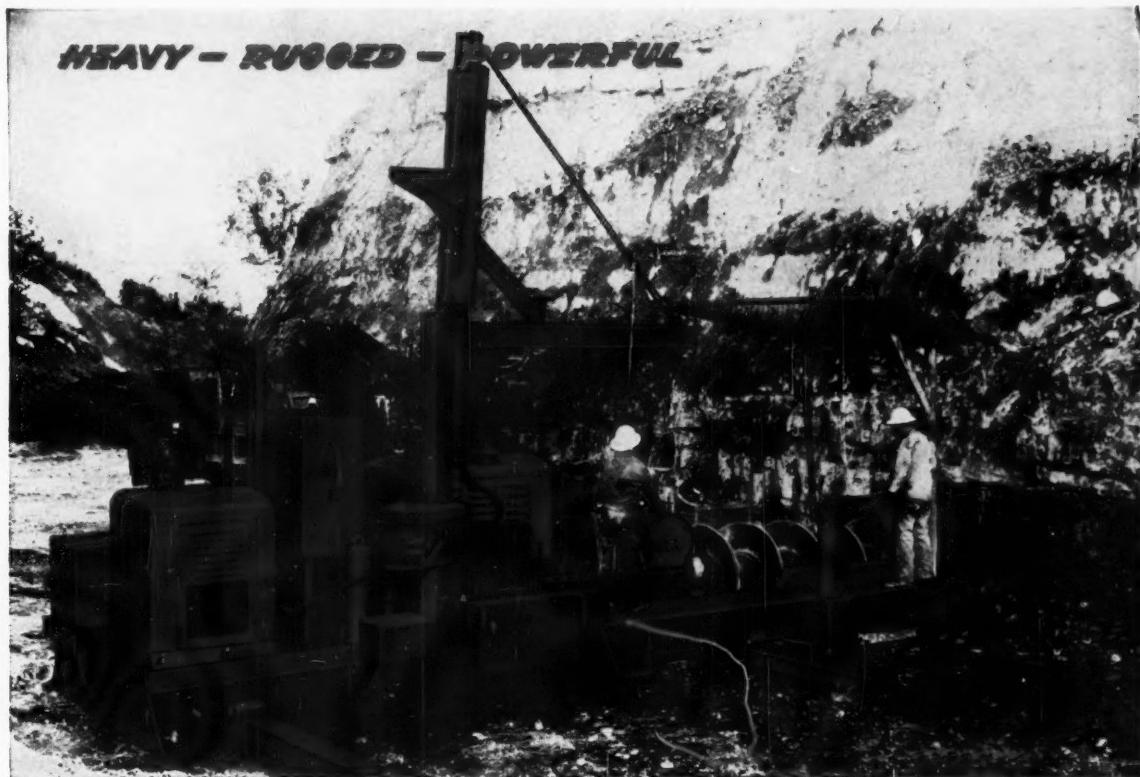
Space does not permit listing of the many outstanding pieces of equipment available in our yards. Fast turnover of our used machinery also makes it impossible to itemize at any one time the many excellent pieces in a wide range of sizes, models and prices. Visit one of our convenient locations to see the safest buys on the market.

\*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

## BECKWITH MACHINERY CO.

BRADFORD, PA. • 361-369 Congress St. • Phone 3166  
CLEARFIELD, PA. • Old Town Rd. • Phone 5-9635  
ERIE, PA. • 1356 E. 12th St. • Phone 4-2494  
FARRELL, PA. • E. Broadway • Phone Di. 6-3572  
CLARKSBURG, W.VA. • U.S. Rt. 20 • Phone Main 4-5476

6550 Hamilton Avenue • PITTSBURGH • Phone: MOnroe 1-6900



## **LOWEST COST PER TON WITH McCARTHY AUGER DRILLS**

**LIVE POWER • RAPID TRAVERSE  
• EASY COUPLING PINS • SAFETY  
AUGER GUIDE SIDEWAYS—FORWARD  
AND BACK-MOVING SKIDS**

### **COAL RECOVERY "Walks" from hole to hole to auger high-quality coal**

An Ohio miner removes 550 tons of coal in each 8-hour working day with this Model 14 36-42x12' McCarthy drill, operated by two men. He drills 42" dia. holes 144' deep. Auxiliary conveyor eliminates spillage at hole. It operates on either side of drill for working blind cut. Twelve different models of McCarthy Coal Recovery Drills mine low-cost "bonus coal".

*Manufacturers of Drilling Equipment Since 1901*




**VERTICAL  
MODEL 106-24**  
*World's Fastest Heavy-Duty  
Vertical Auger Drill*

Bores faster, deeper, larger dia. holes than any other auger drill. New gear reduction unit slows auger rotation for operation in hard rock formations. Drills 8" and 9" dia. holes readily in shale and sandstone formations, drills larger dia. holes up to 24" dia. in softer formations.

**THE SALEM TOOL COMPANY**  
773 SOUTH ELSWORTH AVE. • SALEM, OHIO, U.S.A.

**HORIZONTAL  
MODEL 104**  
*Lowest Drilling Costs per  
Foot, Self-Propelled or  
Truck-Mounted*

Bores up to 12" dia. holes to 150' depth faster, cheaper than any other horizontal drill. Requires less working space, saves many man-hours... operates easily in tight, hard-to-reach locations.



**FINGER-TIP CONTROL**  
Gives Desired  
Rotating Speed  
of Auger



**HYDRAULIC FEED**  
Provides Any Speed  
up to 6 Feet per  
Minute Horizontal  
Feed of Drill



## A WORRY-SAVING BECKWITH-CATERPILLAR SERVICE

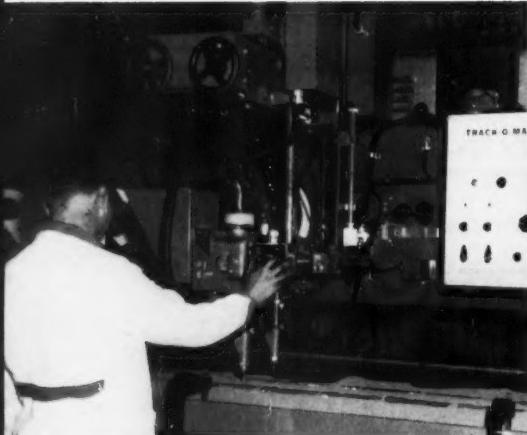
Here are the details of Beckwith's easy payment plan that makes little bills out of big ones.

**1** The first prerequisite is that you own the machine which is to be repaired.

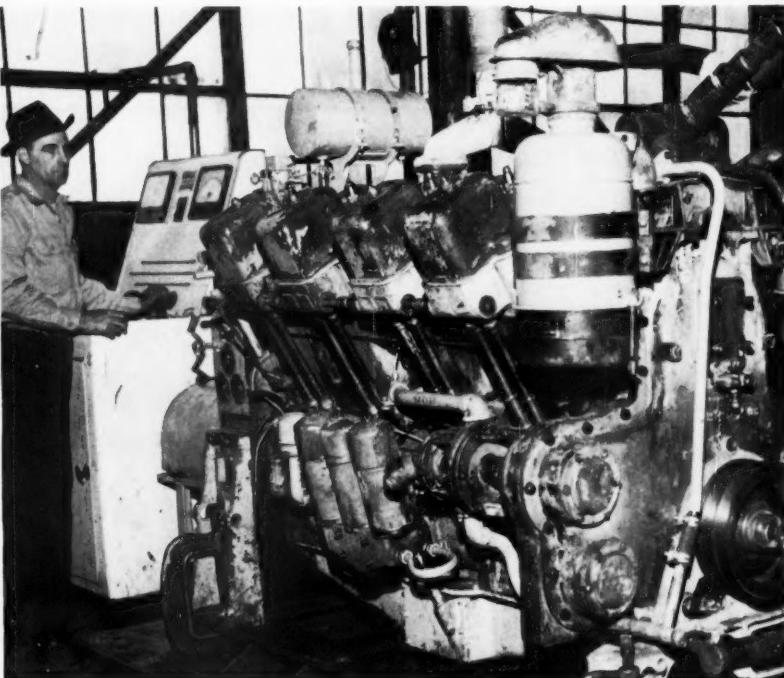
**2** The work must be done by our factory trained Beckwith servicemen, using our special time-saving tools and genuine, factory-built parts. Special arrangements may be made when purchas-

ing complete Caterpillar track assemblies for installation by the owner's employees. These may be new tracks or Beckwith-rebuilt undercarriage assemblies.

**3** You pay one-fourth of the total bill and put your equipment to work. Then, as these efficient repairs let your machine produce greater profits, you make easy monthly payments as you earn.



Modern automatic welding machinery makes it possible for us to rebuild tractor undercarriage components back to factory specifications with substantial savings for you.



This Turbo-Closed System Engine Dynamometer enables Beckwith technicians to properly run-in rebuilt engines, and adjust them to factory specifications resulting in exact Horsepower and R.P.M. for the owner's requirements. Actual load conditions are produced for testing purposes.

ASK FOR DETAILS ON THE...

**BECKWITH**  **PLAN**

GET NEEDED REPAIRS NOW — PAY LATER AS YOU EARN!

**PAY AS YOU EARN!**

## EASY-PAY PLAN FOR SHOP REPAIR WORK OR BECKWITH-REBUILT UNDERCARRIAGE ASSEMBLIES MEANS YOU CAN GET SERVICE YOU NEED NOW . . .

If you have put off making necessary repairs to your equipment because you didn't want to tie up all your ready cash--here is good news.

There is no sense in limping along with a tractor that needs major repairs. You aren't getting full value or production from your machine. Now you can get those much-needed parts and repairs and pay for them in monthly installments, providing you own the unit.

Beckwith Machinery Company, your Caterpillar headquarters offers an easy-pay plan that lets you pay as you earn. It's simple. Just contact the Beckwith branch near you. Tell them what you need in the line of Cat repair service. Let us know what you can pay now and how you'd like to take care of the balance. We'll make all arrangements and tell you when to bring in your equipment.

Don't delay another day--call the Beckwith-Caterpillar location near you now and talk over your repair problems! Our branch and service managers will be glad to help you figure out the most convenient terms.

\*Both CATERPILLAR and CAT are registered trade marks of The Caterpillar Tractor Co.

Factory-trained serviceman works on starting engine. Men with "know-how" and good test equipment assure you of quality work.

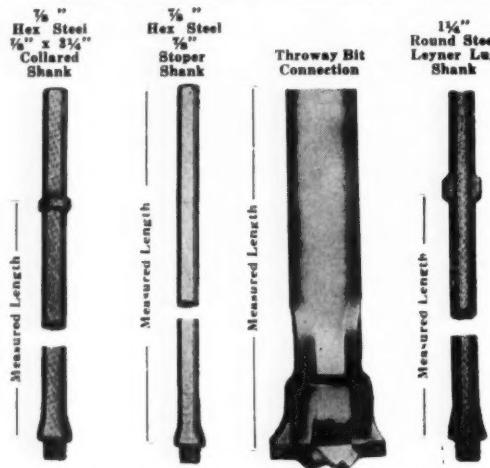
**BECKWITH**  
**MACHINERY CO.**

BRADFORD, PA. • 361-369 Congress St. • Phone 3166  
CLEARFIELD, PA. • Old Town Rd. • Phone P O 5-9635  
ERIE, PA. • 1356 E. 12th St. • Phone GL 4-2494  
SOMERSET, PA. • Rt. 219 N. • Phone Somerset 6533  
CLARKSBURG, W.VA. • U.S. Rt. 20 • Phone Main 4-5476

6550 Hamilton Avenue • PITTSBURGH • Phone: MOnrose 1-6900

## TOOLS from MARS

Pittsburgh Call Zenith 0861 • Mars Call National 5-4688



Drill Steels Furnished with Any Type End  
Reconditional Service

**ROBERT T. WOODING'S INC.**  
MARS, PENNA.

Distributed by

**LEE SUPPLY CO.**  
P. O. BOX 3 CHARLEROI, PENNA.  
PHONE HUDSON 3-8933

# COAL MINING

Vol. XXXVI

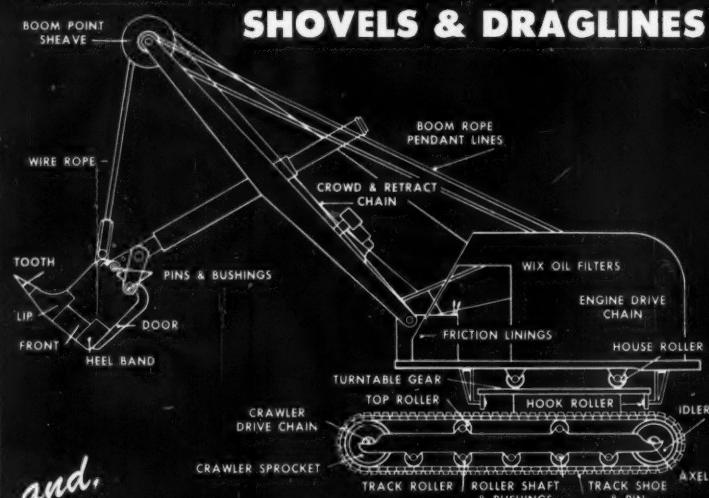
OCTOBER, 1959

No. 10

## Contents

Do You Know?	7
Here and There in the Coal Industry	7
Seventeenth Pennsylvania State-Wide First Aid Meet	8
British Hydraulic Equipment For Mines	11
Good Equipment an Important Part of Shawville Coal Co. Operations	18
Motivating Mind Must Be Developed In the Coal Industry	20
Co-operation of Scientist, Mine Operator and Public for Water Protection Urged	22
Advertiser's Index	28

## QUALITY REPLACEMENT PARTS FOR SHOVELS & DRAGLINES



In a most modern and well equipped rebuilding shop

### REBUILD TO STANDARD

TRACK SHOES • TRACK IDLERS • TRACK SPROCKETS • BUSHINGS  
HOOK ROLLERS • HOUSE ROLLERS • TRACK ROLLERS • SHAFTS • DIPPERS

**MAXIMON MACHINE COMPANY, INC.**

ALTOONA, PA. • 801 N. LOGAN BLVD. • WINDSOR 3-1156  
GROVE CITY, PA. • HARRISVILLE RD. (RT. 58) • PHONE 1422

Published by

**Modern Mining Publishing Company**

4575 Country Club Drive  
Pittsburgh, Pa. Phone TU. 1-9411

P. F. JASIK, Publisher and Editor



Printed by

**ADVANCE PRINTING & LITHO CO.**

1118-20 Chestnut St.  
Erie, Pa. GL 4-7196

# Strip at a Profit

## with this Page where other machines lost money

**Let us send you records of such results —**

**Where Page Walkers made a losing job profitable — other cases where the owners increased their profits on operations which were making money.**

Page Draglines consistently out-perform larger but slower machines, in every kind of digging. And are built extra strong, are real work-horse machines that can stand up with the fastest practical hoist and swing speed which are needed to give the greatly increased yardage.

Powered by the Page V-type diesel, designed especially for dragline work, with bigger bearings and pistons, slow speed. Or furnished with electric power if you want it.

**Get an estimate of your own stripping costs** with a Page. We'll be glad to give you figures you can depend on, based on accurate records of what has been done.

**FRANK SWABB  
EQUIPMENT CO.**  
Hazleton National Bank Bldg.  
Hazleton, Pa., Ph. Gladstone 5-3658

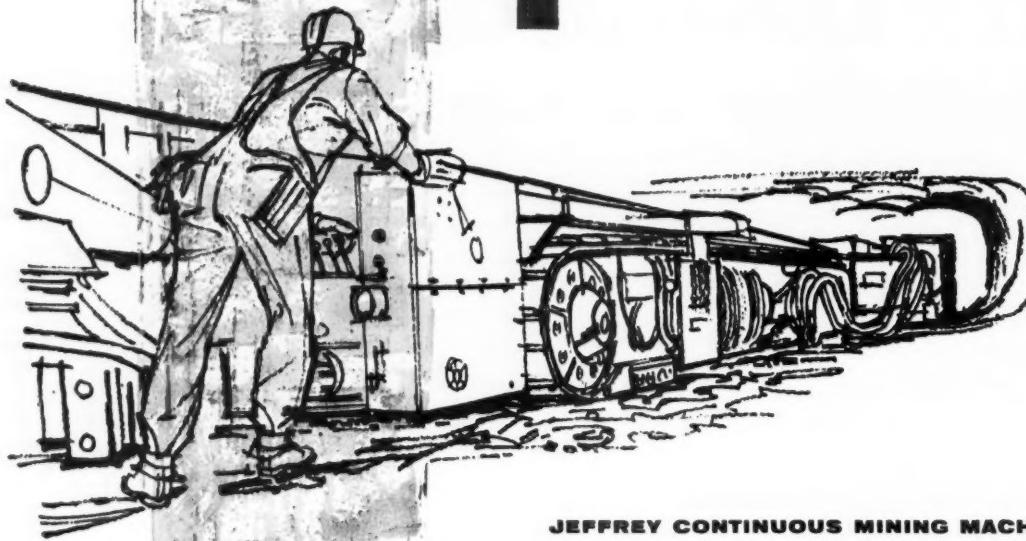
Page Model 726 Walking Dragline with  
12 cu. yd. bucket and 150-foot boom.

For High Production and Lowest Operating Costs --  
**PAGE WALKING DRAGLINES**

choose from

4

types of Jeffrey Colmols®



**1 RANGE** — Choose from four basic types. Variations within each type give the range that's ideally suited for your operation. You pay for what you need—and that's all.

**2 CONTROL** — Colmol mining is controlled mining. The operator is in full command; gets smooth, immediate, positive response from electric-hydraulic controls...centralized for convenience, safety, easy access...located so that the operator has an unobstructed view of cutting and discharge operations...minimum operator fatigue.

**3 CAPACITY** — Loading rates vary with hardness of coal, impurities in the seam, condition of roof and floor, as well as other factors. Colmol's boring principle of cutting and breaking while advancing in the coal with a minimum of waste motion, assures highest loading rates with maximum face time. Want highest possible tonnage? Then you want Colmols!

#### JEFFREY CONTINUOUS MINING MACHINES

##### GENERAL SPECIFICATIONS

	86-A	76-AM	76-BM	76-CM
Maximum mining height	44"	60"	77"	96"
Minimum mining height	28"	38"	50½"	67"
Width of cut	14·7"	9·8"	10·9¾"	10·9¾"
Minimum trammimg height	25¼"	34½"	48½"	63¾"
Width over crawlers	10·0½"	72"	77"	77"
Length	34·3"	29·5½"	33·10"	33·10"
Trammimg speed (feet per min.)	22'	20'	20'	20'
Feed speed (inches per min.)	0° to 51°	0° to 36°	0° to 36°	0° to 36°
Electric motors (total HP)	190	190	190	250
Weight—approx. (lbs.)	92,000	56,000	73,000	75,000

Voltage: Colmols can be built for operation on any of the following voltages:  
250 V or 500 V, DC; 440 V, 3-ph, 60-cy., or 415 V, 3-ph, 50-cy., AC.

**COAL PRODUCTION**

**RECORDS SHOW**

**LOWEST COST PER TON**

**WITH JEFFREY COLMOLS**

**Get facts now...**

*Call or write your nearest Jeffrey office*

**THE JEFFREY MANUFACTURING COMPANY**  
969 NORTH FOURTH STREET • COLUMBUS 16, OHIO



**JEFFREY**

MINING • CONVEYING • PROCESSING EQUIPMENT...TRANSMISSION MACHINERY...CONTRACT MANUFACTURING

## Do You Know?

● A plastic bandage may be sprayed on injured feet and ankles of patients who are allergic to adhesives. The spray also is useful as an undercoating where sweating feet prevent adhesives from sticking. As a substitute for adhesive tape, the plastic permits freedom of movement and circulation. The spray was described by Dr. Jack Stern, Chicago College of Chiropody and Foot Surgery, at the American Podiatry Association meeting here.

\* \* \*

● The next generation of mining engineers will face problems requiring a more intensive specialization than that characteristic of earlier generations.

Fields that need intensive study are properties of rocks under confining forces, effects of pressure release due to the mining operation, and the plastic and viscous flow of rocks in deep mining, Walfrid Been of Michigan College of Mining & Technology, Houghton, Mich., told the American Mining Congress at Denver, Colo.

Mr. Been said the intensification of the science background must be made at the cost of relinquishing time in some other area of training. However, he said, the danger of subordinating engineering qualities to a preoccupation with the scientific studies must be recognized.

\* \* \*

● Automation is still in its infancy, Dr. Allen V. Astin, director of the National Bureau of Standard, said and "we still have a long way to go before we will have a completely integrated and automated industry."

To bring automation closer to maturity, Dr. Astin reported at ceremonies dedicating a new \$2,000,000 research and development center of the Leeds & Northrup Company, both technology and research must contribute to the advance of automatic instrumentation.

To meet technological demands and competition, all firms should maintain staffs of scientists and provide them with tools for studying business-improving methods, he said.

The technological advancement of business, he said, depends on "a proper state of mind, that of seeking to improve one's product, to develop new ones, and to improve basic production processes." This he considered a prerequisite to a vigorous economy.

Dr. Astin emphasized that instrumentation is the key to all experimental research. It provides the link between research and technology and can be important for business and technological growth as well as to the future of big and little business.

## HERE AND THERE IN THE COAL INDUSTRY

● Lord Bertrand Russell said that mankind must soon choose between accepting extinction or creating a powerful world authority with a monopoly on the major weapons of war.

Lord Russell, world-famous philosopher, mathematician and Nobel Prize winner, spoke as one of six renowned panelists at a symposium on "The Future of Man," marking the dedication of the new headquarters of Joseph E. Seagram & Sons in New York City. Dr. Milton S. Eisenhower served as chairman.

The other panelists were Dr. Ashley Montagu, anthropologist and author; Robert Frost, poet, educator and four-time Pulitzer Prize winner; Sir Julian Huxley, biologist and author; Devereux C. Josephs, chairman of the President's Committee on Education Beyond the High School, and Dr. Hermann J. Muller, zoologist and Nobel Prize winner.

The fate of the world, contended Lord Russell, depends on the selection of statesmen to further a world authority that can allow man to enjoy the "universal well-being which science has made attainable."

Dr. Montagu explained that man has become adept at learning, not only more sound things than any other creature, but more unsound things.

"The result," he said, "is not intelligence, but confusion."

He proposed a specialized education "conceived as the science and art of human relations plus the critical ability to use one's mind critically." This would require a revaluation of our present modes of instruction, which he believes fail to meet his definition of education as "humane discipline of the whole person."

Sir Julian urged man to take immediate steps to work out a world

population policy to prevent erosion of the world's resources. Such steps, he said, would lead to the development of a "Fulfillment Society" to replace the Welfare State.

In the coming century, he said, man's first job will be to think collectively, in terms of continuing the human species as a whole.

"The faith of the future will be in the possibilities of the human species, and the power of human knowledge to realize them more effectively."

\* \* \*

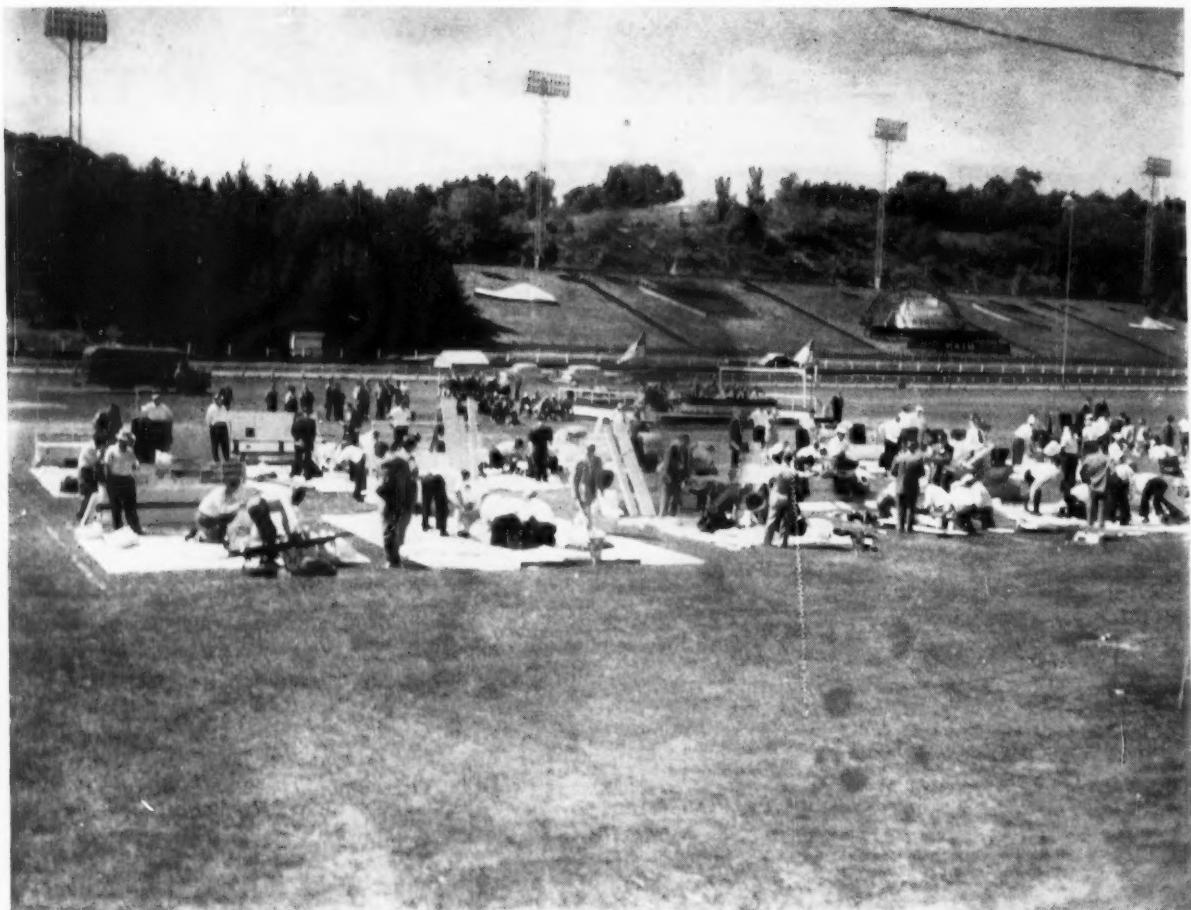
● Complete details on M-S-A Porto-Power hydraulic rescue equipment are provided in a bulletin now available from Mine Safety Appliances Company, Pittsburgh.

The brochure describes operating principles of the equipment, which combines a hand-powered hydraulic pump and hydraulic ram to convert manual power into a maximum of 20 tons of power applied to rescue operations. A wide variety of applications are illustrated, including removal of piled debris, bracing of tunnel walls, opening smashed vehicle doors, and spreading jammed openings.

Three packaged Porto-Power sets are described in the bulletin: four-ton for light duty; 10-ton for general duty, and 10 and 20-ton for heavy duty. A special 50-ton unit for lifting in mine, railroad, factory, and marine disasters is also illustrated, together with a line of hydraulic hand jacks ranging from 1½ tons to 100 tons.

A parts list for the packaged Porto-Power sets accompanies the bulletin as a separate insert.

The bulletin, No. 0911-1, and the parts list, No. 0911-2, are available on request from Mine Safety Appliances Company, 201 North Bradock Ave., Pittsburgh 8, Pa.



## Seventeenth Pennsylvania State-Wide First Aid Meet

● The 17th Annual Pennsylvania State-Wide First Aid Meet was held at the Stadium in South Park, Pittsburgh, on September 12. Twenty-eight teams competed, all were winners of district meets.

One of the speakers at this meet pointed out the reduction in the number of fatal accidents in bituminous mines since 1927 when it was decided to make safety meets state-wide. In 1927 there were more than 500,000 coal miners. Today there are about 175,000 coal miners. Figuring man hour ex-

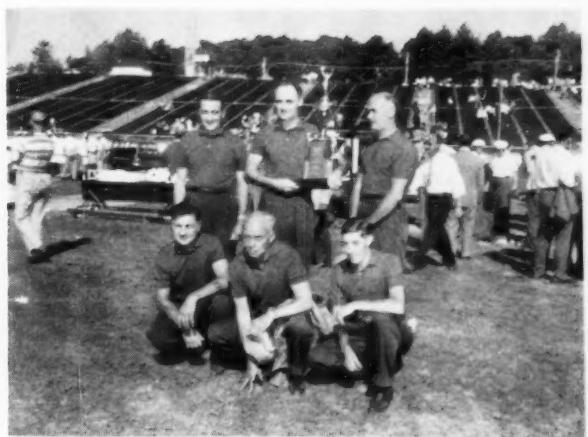
posure in 1927 against that of today, there is not much change in the accident rate. The reason for fewer men in the mines is more machinery to produce the coal with. Our answer to fewer accidents appears, then, to be in more and better mining machinery.

To get better mining machinery, the coal industry must show more creativity which is not as much attitude as attitude. Creativity, as a rule, is response to something greater than ourselves. Research will help bring about creativity for

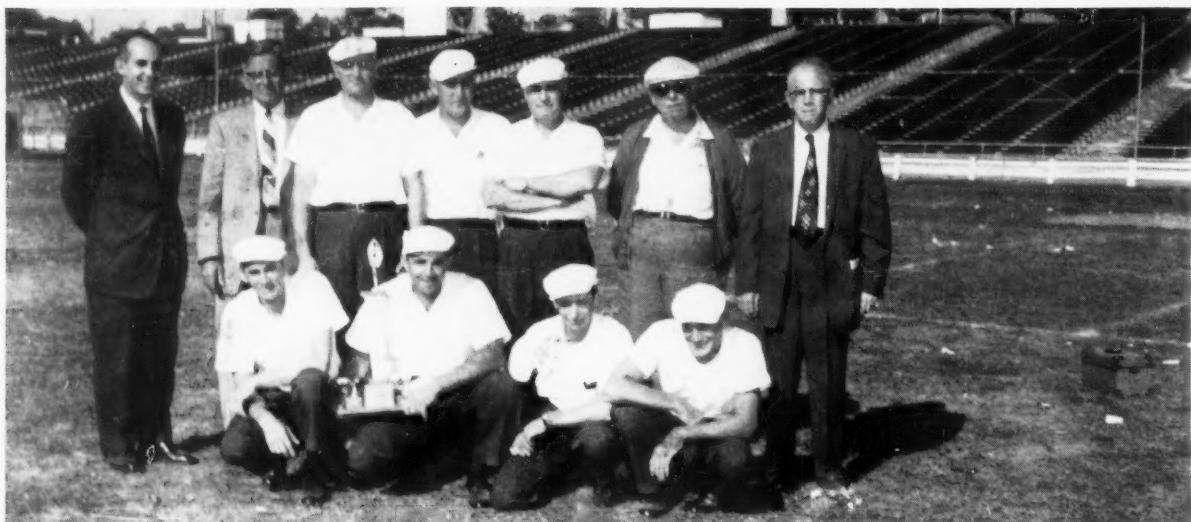
the product of research is knowledge. The greater the knowledge, the greater the value of discovery, brought about by creativity. The answer may lie in more freedom of thought among the operating personnel or in encouragement by special award. It might help if in the present emergency the coal industry and the manufacturer of mining machinery set inducements for extraordinary accomplishment to produce comparable effort and dedication essential for high accomplishment.



Mine rescue team getting ready to demonstrate rescue work.



Winning team representing Harmar Coal Co. (Wheeling Steel Corp.) Left standing: W. Buzard, V. J. Callahan, John Krososky, Left Sitting: Ed Markos, Walter Sonnie, Geo. Flynn.



Second place team representing the Emerald Coal & Coke Co. Left: Eugene Downer, Pro. Mgr., V. D. Whipp, Asst. Supt., Steve Sabo, Elmer Spelman, James Cirotta, Bill Stevenson, Gen. Mgr., D. J. Evans, Supt., Ed Collage, Porter Remington, Tom Murphy, Earl H. Alezander.



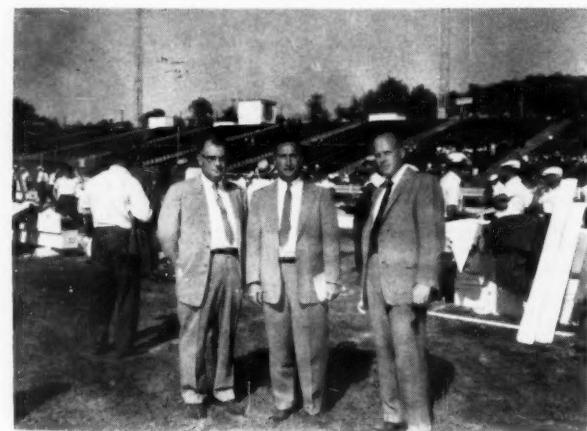
Mr. George Dyke, Chairman of the Board, Mine Safety Appliances Co., (top left) presenting trophy to the winning team.



Left: J. S. Whittaker, V-Pres. Pittsburgh Coal Co., R. C. Beerbower, Gen. Supt., Jack Boyle, Dir. Mine Safety and J. B. Gerod, Asst. Supt., Frick District, U. S. Steel Corp.



Left: S. P. Polack, H. J. Sloman and Pete Seno, U. S. Bureau of mines, Geo. Trevorrow, Dick Johnson, Mine Safety Appliances Co., Harry Gandy, Jr., Safety Director, National Coal Association.



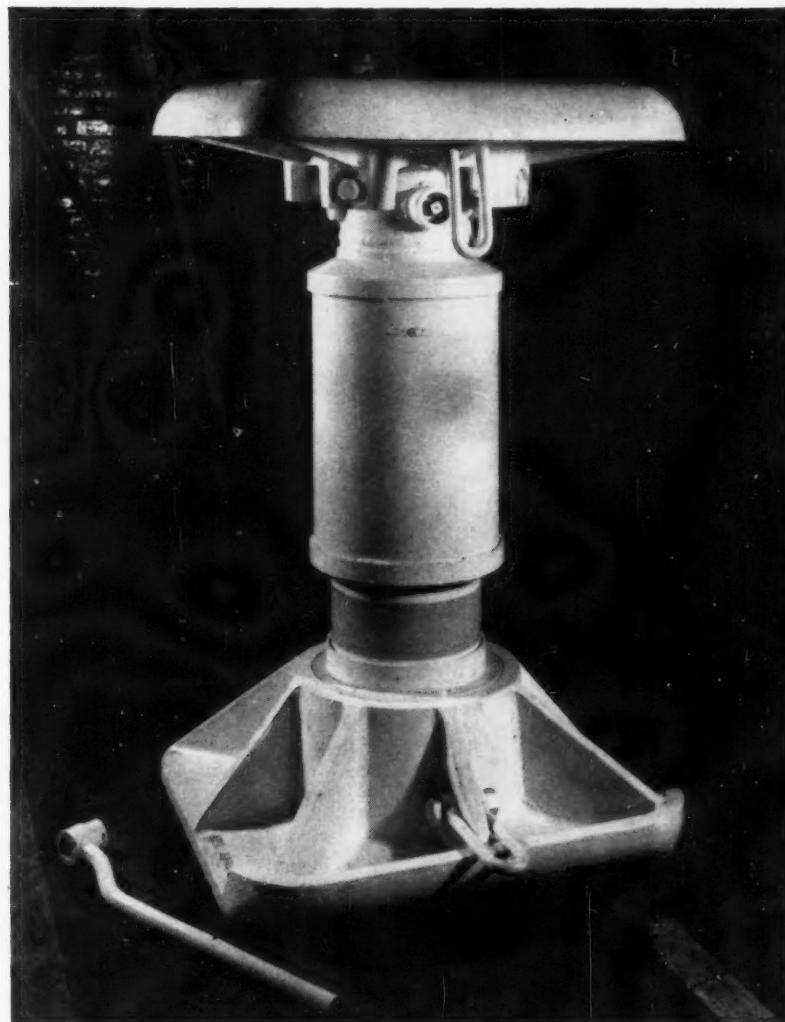
Left: Harry Swihart, Supt., Martin Valeri, Asst. Supt. and C. J. Lindstrom, Chief Eng., Buckeye Coal Co.

# British Hydraulic Equipment For Mines

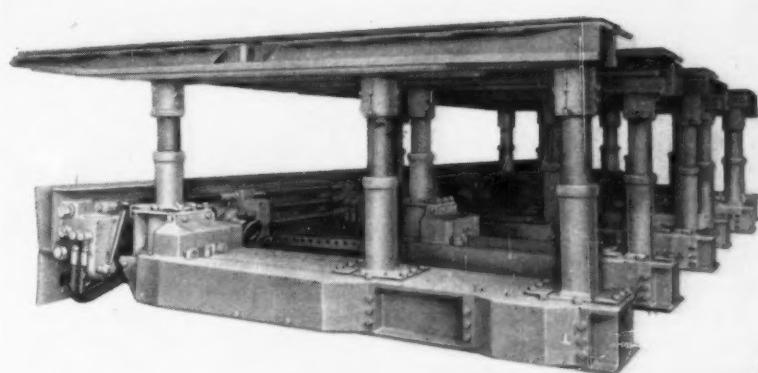
● One of the most notable developments in the design of British mining equipment during the last decade has been the application of hydraulics underground. The most up-to-date hydraulic machinery of British manufacture was seen in London in July at the Mining Machinery Exhibition, which provided the most comprehensive display of its kind ever staged in Britain.

Little more than ten years ago progress in the use of fluid-power had been slow, but since then the great potential value of hydraulic systems has been exploited by British mining machinery manufacturers, who are playing a notable part in developing the application of hydraulics to mechanical equipment underground, especially near the coalface.

The advantages of yielding roof supports are well known to mining engineers throughout the world. It was in 1946 that the first British hydraulic prop went into service,



This hydraulic pit-prop, a yielding roof support extensively used on long-wall faces to ensure high, uniform resistance and to minimize bed separation and roof falls, is made by Dowty Group Ltd., Cheltenham, Gloucestershire, England, and was on show at the Mining Machinery Exhibition, Olympia, London, from July 9 to 18, 1959.



The Dowty "Roofmaster" is a self-advancing hydraulic roof supporter for use on long-wall faces in mechanized mining. Made by the Dowty Group Ltd., Cheltenham, Gloucestershire, England, it was seen at the Mining Machinery Exhibition at Olympia, London, from July 9 to 18, 1959.

and since then many hundreds of thousands have been installed in the coalfields of Britain and on the European continent.

#### Minimized Roof Falls

The introduction of hydraulic props into coal mines began a period of accelerated progress in the development of support techniques. The high, uniform resistance offered by hydraulic props greatly improved roof conditions, minimizing bed separation and roof falls. Support setting was speeded up, and higher standards of safety were established at the coalface.

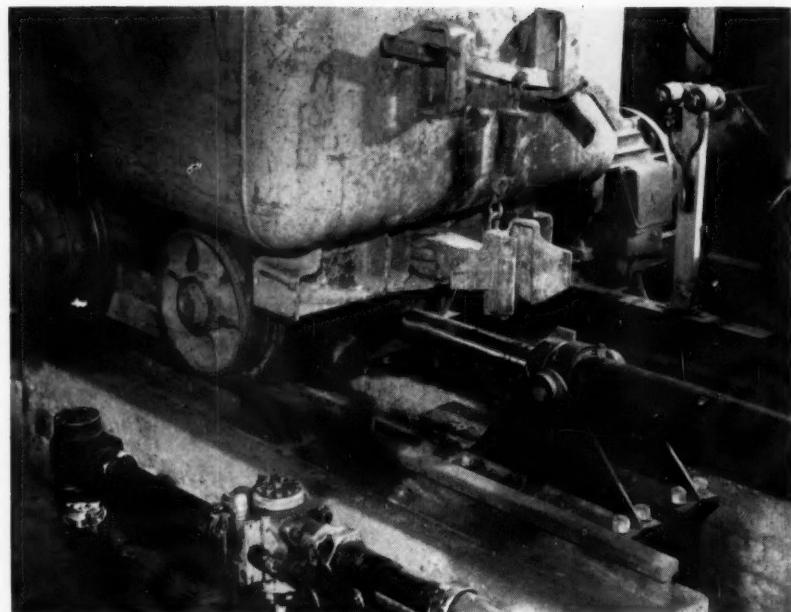
These props quickly demonstrated the usefulness of hydraulic power and were soon followed by other hydraulic devices ranging from the simple roof bar straightener to the latest "self-advancing" roof support system which has the ease and speed of operation called for by modern coal-winning techniques. It allows full benefit to be realized from mechanization and advancement towards complete automation.

Many of the power loaders and coalcutters manufactured by British firms now use hydraulic transmission systems to haul them along the coal face. One such notable system was recently developed by British Jeffrey-Diamond Ltd., (Stennard Works, Wakefield, Yorkshire) and is now used extensively underground in power loaders and coalcutters. It consists of a variable hydraulic delivery pump driving a similar hydraulic motor. A twin-cam (one for automatic control and one for manual selective control) controls the pump displacement and therefore the output speed of the motor.

#### How It Works

An electro-magnet is connected in series with the main electric motor of the machine and set to control the input current. When this amperage is exceeded, the magnet closes and actuates a valve in an auxiliary hydraulic circuit.

This valve operates the twin-cam in the main hydraulic circuit, so



This back shunt, made by Humphreys and Glasgow Ltd., of London, is incorporated in a minecar decking unit. It was seen at the Mining Machinery Exhibition, Olympia, London, from July 9 to 18, 1959.

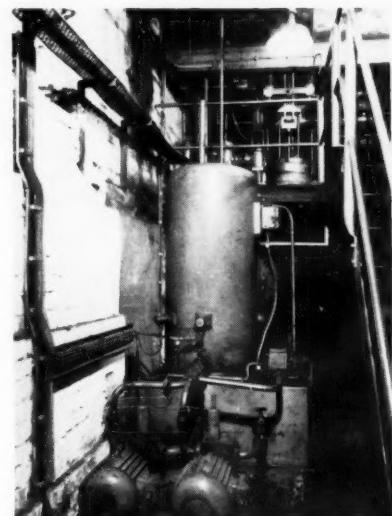
that the machine is slowed down. The lower speed results in a reduced current demand, so the electromagnet again opens, the hydraulic valve is restored to its original position and the machine is automatically speeded up.

#### Many Advantages

Consequently, the speed of travel of the machine is adjusted automatically with fluctuations of load as the machine traverses the coalface, but it will never exceed the manually-selected maximum speed. The operator selects a maximum cutting rate for the job, and between this speed setting and zero speed the machine automatically adjusts its cutting rate to the face conditions.

This form of transmission has many advantages. There is neither overload nor underload, and travel is always at optimum speed; the machine automatically operates at maximum efficiency; the smooth, vibrationless working reduces wear and tear and allows longer periods between overhauls; since the cutting speed is always at maximum under any given conditions, product size is increased.

The hydro-kinetic system has



Part of the hydraulic gear used in mine winder braking systems is shown here. The electric motors pump oil to the accumulators supplying the hydraulic gear for the brakes. The system is so contrived that it may be used to keep the brake at "off" as well as for application. It was seen at the Mining Machinery Exhibition, Olympia, London, from July 9 to 18, 1959. Manufacturer of the hydraulic gear: M. B. Wild & Co. Ltd., Argyle Street, Nechells, Birmingham, England. Manufacturer of motors: English Electric Co. Ltd., Marconi House, Strand, London, W. C. 2.

also been applied by hydraulic couplings to the driving of conveyors and loaders to ensure light

(Continued on Page 17)



# NEW

## power shift transmission

FOR D9 AND D8  
TRACTORS

*split-second shifting  
at full load*



another development presented by your  
**CATERPILLAR Dealer**



GREATER OPERATOR  
CONVENIENCE



SPLIT-SECOND,  
ON-THE-GO SHIFTING



INSTANTANEOUS  
CHANGE OF DIRECTION

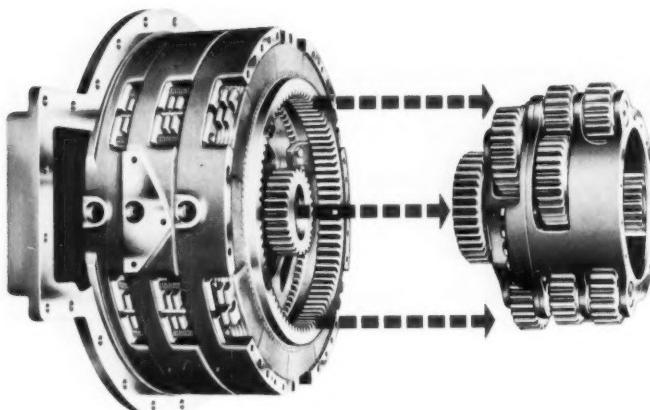
# CATERPILLAR power shift transmission

*Combines the best features of torque  
converter and direct drive*

Caterpillar power shift transmission—a most significant track-type tractor development—a brand new concept in transmissions!

A single lever alongside the armrest replaces flywheel clutch, gearshift and forward-reverse levers. You can shift in a split-second—reverse direction, change gears—without clutching. Such fast, convenient, on-the-go shifts give plenty of power in the highest gear possible. It's so easy to shift that the operator just naturally gets more production out of the tractor.

But more important, and a Caterpillar exclusive, this power shift transmission has the snap—the solid operating feel—of direct drive, plus efficient use of fuel and power. To these it adds the flexibility and anti-stall characteristics of a torque converter machine.



## Designed and built for track-type tractor use

On the left you see a portion of the components that make up the Cat power shift transmission. This rugged transmission, weighing over a ton, is built by Caterpillar specifically for big track-type tractors. Every component is designed and built for long-lived service. Selected alloy steel insures quality performance under the toughest conditions.

Further, Cat power shift transmission comes to you thoroughly tested by years of design and field work on the heaviest earthmoving jobs. You can be sure it will stay on the job!

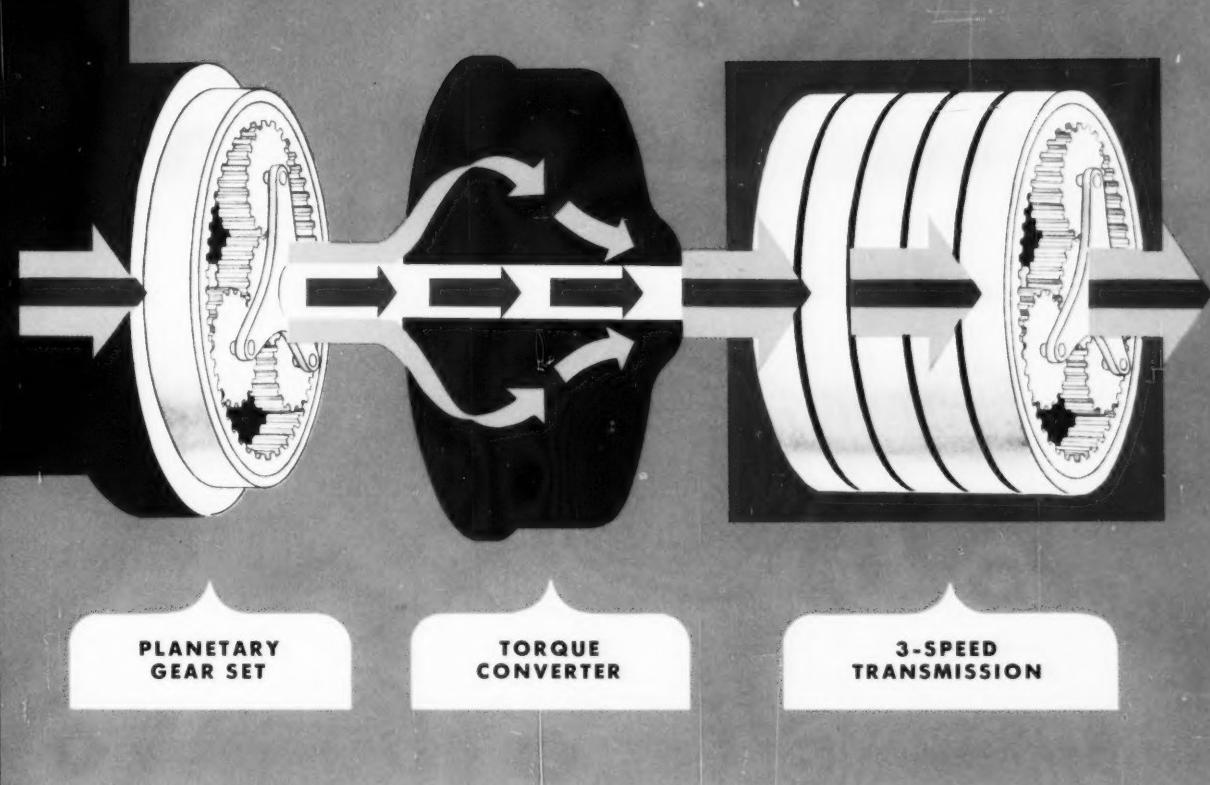


NEW FROM  
CATERPILLAR

To meet the continuing chal-  
lenge of the greatest construc-  
tion era in history with the

**SIMPLE • RUGGED • SERVICEABLE**

**an amazing new principle in transmission design**



**PLANETARY  
GEAR SET**

**TORQUE  
CONVERTER**

**3-SPEED  
TRANSMISSION**

The Cat power shift transmission incorporates a new, unique principle in big-tractor transmissions: A set of planetary gears, mounted in the engine flywheel, divides the engine power — part goes through a direct drive shaft straight to the transmission →, and the remainder through a torque converter → to the 3-speed transmission. This division enables the Cat power shift transmission to combine the best features of direct and torque converter drives.

Power shift transmission control is mounted to the left of the operator (see previous pages).

A single lever, the gear selector lever (black knob), replaces the conventional gear shift, forward-reverse and flywheel clutch levers. It moves in a "U" pattern to various positions. Forward speeds are to the right—reverse

to the left. For smooth, instant changes in speed and/or direction the operator simply moves the lever with his left hand to the desired gear position. The right hand always remains free for steering or equipment controls. The safety lever (red knob) prevents accidental transmission engagement of the control when the engine is running and the machine is in neutral. A hydraulic safety valve automatically shifts the transmission into neutral when the engine is stopped.

The Caterpillar power shift transmission is designed and built for heavy earthmoving service. It's rugged—it's efficient. And its clean, unit construction design makes it easy to service.

*See for yourself! Operate it yourself! We're ready to demonstrate on your job. Call us today!*

**In DEVELOPMENT for many years—  
Then PROVED on the most severe jobs**

**CATERPILLAR**

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

**NEW FROM  
CATERPILLAR**

To meet the continuing challenge of the greatest construction era in history with the most productive earthmoving machines ever developed.

## NEW **CAT D9** SERIES E **TRACTOR**

**more powerful • stronger  
• more operating ease—  
more productive**



The biggest "new look" in the D9 Series E is the undercarriage. It's more massive than ever—bigger—stronger—more rugged. Every track component is new in design and engineered for long life. Total result to you: a rugged running gear—the strongest ever built for *any* crawler! And there are many other new advances in the Series E!

**335 Horsepower**—New design turbocharger increases power output by packing more air into the engine. Increased horsepower means more production every operating hour.

**3 Transmission Options**—The new power shift, direct drive and torque converter drive transmissions. With these three great power train options, you can fit the D9 to your jobs.

**Unpinned Equalizer Bar**—A new, cam-type equalizer bar is especially effective on sidehill operations. The rocking contact of the bar with a bracket welded to the tractor main frame, helps increase stability, increase operator confidence, by shifting the tractor's weight to the high side.

Have us demonstrate the New D9 Series E—let us show you this new powerhouse in action!



Key to the big improvement in D9 undercarriage is the pitch of the track links—it's increased  $1\frac{1}{4}$ " to  $10\frac{1}{4}$ ". Diameter of pins and bushings is increased  $\frac{1}{4}$ ". Height of grousers is increased  $\frac{3}{8}$ ". Shoe bolts are increased  $\frac{1}{8}$ ". Roller flange diameter is increased  $\frac{1}{4}$ ", and flange width is increased  $\frac{1}{8}$ ". Shoes, links and rollers are made of new, deep hardenable steel alloy that permits deeper hardening of wear surfaces, adds up to 40% longer life to these components.

### YOUR CATERPILLAR DEALER

#### **BECKWITH MACHINERY COMPANY**

6550 Hamilton Avenue, Pittsburgh, Pa.  
Old Town Road, Clearfield, Pa.  
361-369 Congress St., Bradford, Pa.  
1356 E. 12th St., Erie, Pa.  
Route 219 North, Somerset, Pa.  
Buckhannon Pike — Route 20, Clarksburg, W. Va.

#### **OHIO MACHINERY CO.**

6606 Schaeaf Road, Cleveland, Ohio  
930 Kinnear Road, Columbus, Ohio  
2807 Reynolds Road, Toledo, Ohio  
U.S. Route 250, Cadiz, Ohio  
4000 Lake Park Road, Youngstown, Ohio

#### **WALKER MACHINERY CO.**

Route 60 East, Belle, W. Va.  
4010 Emerson Ave., Route #2, Parkersburg, W. Va.

CM-9

Printed in U.S.A.

DT-1303

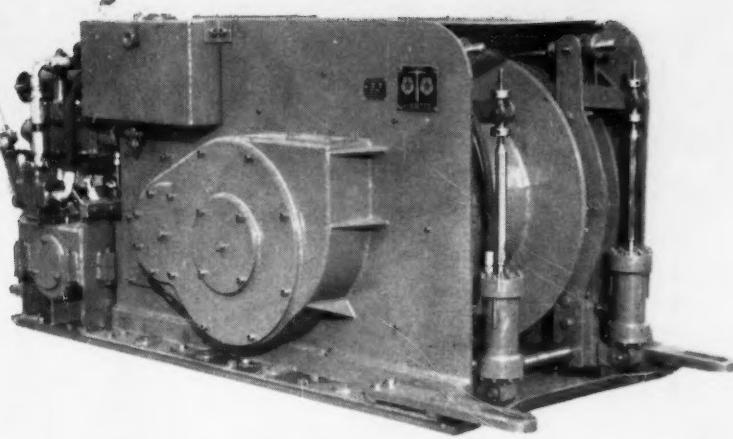


Please send me more facts. How can I increase production with:  
 The Cat power shift transmission.  
 The new, 335 HP D9 Series E Tractor.  
 Please have your representative see me in person.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



Rope haulage gear with hydraulic transmission for the haulage of minecars underground, as shown here, is manufactured by Austin Hopkinson and Company Ltd., of Audenshaw, Lancashire, England. It incorporates a hydraulic motor made by Vickers-Armstrongs (Engineers) Ltd., of London. This equipment was on show at the Mining Machinery Exhibition, Olympia, London, from July 9 to 18, 1959.

(Continued from Page 12)

load starting and an efficient, vibrationless drive. Each coupling contains a mineral oil and is fitted with a fusible plug to guard against abnormal loads on the output shaft.

A new hydraulic loop take-up gear for belt conveyors was introduced in 1957 by Richard Sutcliffe Ltd., (Horbury, near Wakefield, Yorkshire) and is an improvement on the long-standing dead-weight tension gear. The basic idea of its operation is the replacement of the winch hand-wheel of a normal loop take-up gear by a reversible hydraulic motor, controlled by a closed-circuit feed-back system based on a belt-tension measuring unit.

#### Successful Regulation of Minecars

Hydraulics has been applied successfully in Britain to decking and minecar control equipment. One system has been developed so that an operator at a convenient point can regulate the flow of minecars from any number of underground roads to the pit bottom for marshalling and decking. All power for operating retarders, safety stops, tub-thrusters and points

switching gear is generated from one central unit driven by a small electric motor. The system has been designed to include fool-proof safety measures and little maintenance is required other than topping up the oil reservoir and periodic filter cleaning.

(Manufacturer: Dowty Mining Equipment Ltd., (Ash Church, Tewkesbury, Gloucestershire.)

The application of hydraulics to mine-winder braking systems is not new, but it has been developed to a great extent and must now be considered near-perfect, from both an operational and safety point of view.

#### Disc Brakes

A short time ago the first disc-braking system was fitted to a British winder and this made use of high-pressure hydraulics and spring brake application. Although disc-braking is new, the method using high-pressure hydraulics was developed in Britain and put into use on a conventional winder in 1952. The firms involved were Blacks Mining Equipment Ltd., Bromley, Kent and Markham &

Co., Ltd. Broad Oaks Works, Chesterfield, Derbyshire.

Several new machines incorporating hydraulic mechanisms are in various stages of development, and Britain's National Coal Board and the Ministry of Power are examining the fluids for hydraulic apparatus in coal mines so that a specification of the various operational and safety properties required in the fluids may be drawn up.

In the broader sense of the word, hydraulics is used in the actual getting of the coal. In the water infusion system, water is pumped into the seam under high pressure, thus breaking up the coal and making it easier to extract; or an explosive charge is fired in a seam already containing high-pressure water which is used to transmit the energy from the charge throughout the seam. Thus water infusion, originally introduced as a technique for dust suppression, now also plays a part in production.

Experiments are also to be carried out in Trelewis Colliery, Glamorgan, Wales, where high-pressure water jets are played on the coal face, cutting the coal and allowing it to be transported from the face in channels.



Here is an underground minecar tippler, hydraulically operated, made by W. G. Allen & Sons (Tipton) Ltd., Tipton, Staffordshire, England, which was seen at the Mining Machinery Exhibition, Olympia, London, from July 9 to 18, 1959.



Lima 2400 and Allis-Chalmers HD-21 strip overburden at Shawville Coal Company, Inc., Shawville, Pa.

## Good Equipment an Important Part of Shawville Coal Co. Operations



Left to right are James G. Hudson (Shawville), Benson H. Lingle (Shawville), Bill Martin (Lima Works) and Boyd Rougeux (Shawville).

Besides being a well known coal producer, Shawville Coal Co. has earned an enviable reputation for its equipment purchases and maintenance program. Backed by a record of solid growth in recent years, this concern has found that it pays to replace and add to its stripping and loading machinery at regular intervals. In addition, all equipment is periodically inspected and always kept in top working order.

Shawville also is a leader in the use of the latest in strip mine communication with a complete radio set-up plus two helicopters. The latter permit quick transit to and from the various mines. They also are handy for fast trips to near-by cities for parts or meetings.



Shawville Coal Co. Allis-Chalmers HD-21 strips overburden.

The setting at Shawville permitted the COAL MINING photographer to get some unusual shots of the company's new Lima 2400 shovel along with photos of its Lima 44 loading shovel and Allis-Chalmers HD-21 tractor. All three were just recently purchased from Highway Equipment Company, Pittsburgh and DuBois. They're shown working at the firm's Shawville, Pa., mine.



Clearing trees and leveling way for stripping shovel is another important job for the HD-21.



Front view of bucket and boom of Lima 2400.



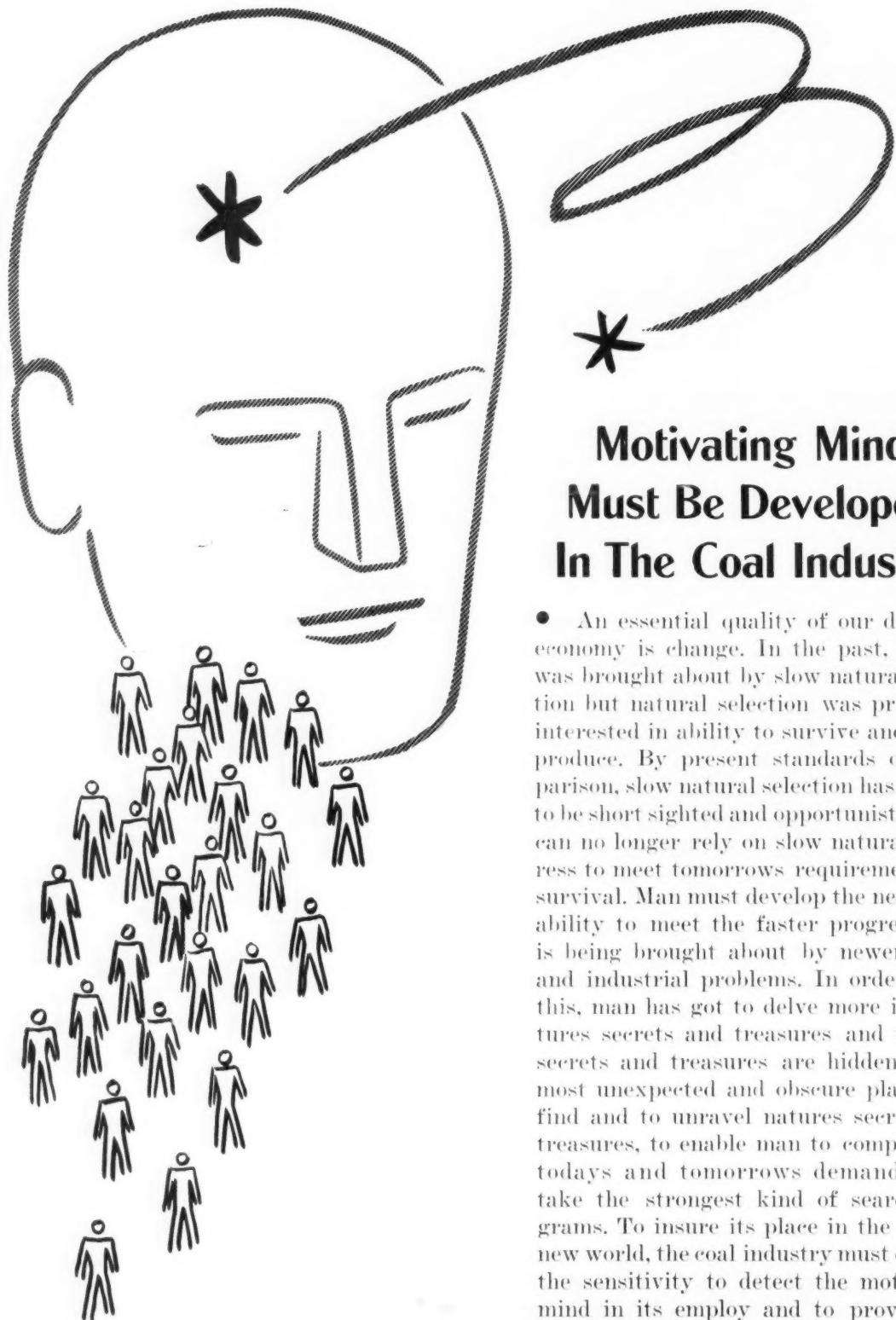
View of Lima 2400 from floor of cut.



Lima 44 loads coal.



HD-21 smooths out spoil pile by Lima 2400.



## **Motivating Mind Must Be Developed In The Coal Industry**

- An essential quality of our dynamic economy is change. In the past, change was brought about by slow natural selection but natural selection was primarily interested in ability to survive and to reproduce. By present standards of comparison, slow natural selection has proved to be short sighted and opportunistic. Man can no longer rely on slow natural progress to meet tomorrow's requirements for survival. Man must develop the necessary ability to meet the faster progress that is being brought about by newer social and industrial problems. In order to do this, man has got to delve more into nature's secrets and treasures and nature's secrets and treasures are hidden in the most unexpected and obscure places. To find and to unravel nature's secrets and treasures, to enable man to comply with today's and tomorrow's demands, will take the strongest kind of search programs. To insure its place in the coming new world, the coal industry must develop the sensitivity to detect the motivating mind in its employ and to provide the kind of climate which will make that mind most effective.

No job is too tough for Allis-Chalmers HD-21s at R. D. Baughman Coal Co., Brookville.

... get Allis-Chalmers' facts  
from *Highway*



Ability to push bigger loads is outstanding HD-21 feature.

... find why leading operators, like  
**R. D. Baughman Coal Co. use**  
**HD-21s** for every mine job!

Before you buy any tractor, talk to your Highway representative.

Ask him to give you real operating facts about Allis-Chalmers tractors. These add up to faster coal production, less downtime and greater profits.

Remember—Allis-Chalmers tractors are preferred by leading strip operators everywhere!

A-821A



*Highway*

**HIGHWAY EQUIPMENT COMPANY**

6465 Hamilton Ave. • Pittsburgh 6, Pa.  
40 Hoover Ave. • Du Bois, Pa.

## Co-operation Of Scientist, Mine Operator And Public For Water Protection Urged

● Because of the many variables involved, there is no known universal, economical or practical method for prevention of acid formation or for treatment after formation, but "there are engineering procedures that may be used in specific cases to prevent or decrease the acid properties of mine discharges", S. A. Braley, Administrative Fellow, Mellon Institute, Pittsburgh, said in a paper before the Society of Mining Engineers of AIME.

The Society is a constituent part of the American Institute of Mining, Metallurgical, and Petroleum Engineers and is the professional organization for engineers and geologists in the minerals industries. The Society's Industrial Minerals and Coal Divisions today conclude a joint three-day meeting.

In a discussion of acid mine water control, Mr. Braley said:

"Much has been accomplished in abatement of acid discharges in operating mines, although the active operations present only a fraction of the entire problem.

"The most serious problem is the abandoned mine. Almost as troublesome are the abandoned areas of operating mines. Operating areas of deep mines and strip mines are a minor factor. While procedures proven effective in specific cases cannot be utilized as blanket requirements for abatement, much improvement can result from greater vigilance on the part of the operator with the assistance and responsible cooperation of enforcement agencies."

Mr. Braley said further:

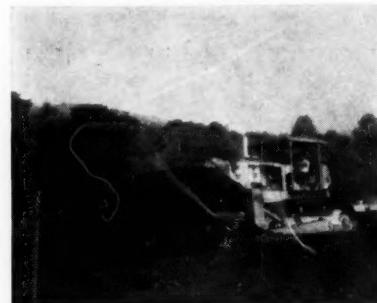
"The natural oxidation of sulfuric material is in the initial reaction responsible for the acid properties of mine discharges. Secondary reactions of the initially-formed acid and acid salts with the geologic strata can produce mine discharges of variable composition

from high acid content to high alkali. The volume of water is determined by the area of excavation and the specific aquifers severed or the water-bearing strata that are exposed.

"Water is our most essential natural resource. It must be protected. Today's advances in science are indicative of what may ultimately be anticipated from continued research and the unselfish cooperation of the scientist, coal operator and public."

● An improved U-shaped bulldozer has been developed for use in coal storage and reclaiming operations by Balderson Inc. of Wamego, Kansas.

The Balderson BD9U-20' features a higher moldboard designed to roll the coal higher, practically eliminating top spillage. Newly designed side wings are angled forward at 25 degrees to keep side spillage to a minimum. The giant Balderson coal blade has a greater over-all capacity than its prede-



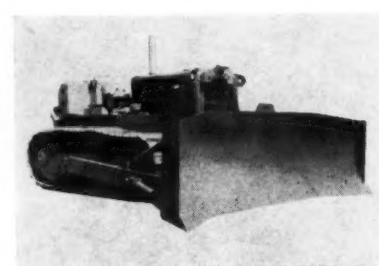
Moving huge loads of coal, up to 30 tons at a time, this Balderson Coal Dozer is outproducing all competition, besides giving lowest cost per ton at double the usual dozing distances.

With overall width of 20" and nearly 6' high, this blade is designed to roll huge quantities with a minimum effort. Perfectly matched for most efficient coal handling at power plants, mines, processing plants and industries, extra large Balderson U-shaped bulldozers and Cat track-type tractors are providing cost cutting equipment for owners throughout the world.

cessor model, enabling the bulldozing of huge coal loads.

Electric utility plants, coal mines and processing plants can increase the efficiency of their Cat crawler tractors in coal handling by attaching the Balderson Coal Blade. Balderson Coal Blades are built exclusively for Caterpillar and are completely interchangeable with standard Cat bulldozer blades, using standard Cat Push Arms and Braces to complete the basic bulldozer.

Complete information, including production data, list of owners, specifications and prices are available at all Caterpillar Dealers.



Perfectly matched for most efficient coal handling at power plants, mines, processing plants and industries, this extra large Balderson U-shaped bulldozer and Cat D9 tractor are providing cost cutting material handling equipment for owners throughout the world.

With overall width of 20' and a new height of nearly 6', the blade is designed to roll huge quantities of coal with minimum effort.

Lowest cost per ton for handling coal at double the usual distances, besides out-producing all competition, sums up the advantages and features of this improved Balderson Model BD9U-20' Coal Dozer powered by the Cat D9 Tractor.

● A machine can read the numbers on checks, deposit slips and other documents, process them, and select and post them to the correct customer's account.

This device using solid-state electronics is being introduced to the business world by the Burroughs Research Center as a data system that reads and writes language that hitherto the human eye has had to handle.

A line of small numbers printed in magnetic ink along the bottom of checks can be read and processed by the visible record computer system.



Typical M-S-A MinePhone Installation

To men entrapped in a mine, sometimes the greatest enemy is silence—the break-off of communication with rescue crews and workers at the surface.

But this ordeal was spared for three miners trapped by a roof fall recently at the Ken Mine of Peabody Coal Company in Beaver Dam, Kentucky. All during the rescue operations—which lasted from 9:00 A. M. on a Friday to midnight of the following day—two-way communications were carried on by means of electronic mine phones connecting surface and underground.

While rescue crews burrowed a 350-foot escape tunnel, the trapped men advised them of conditions in their area of the mine and passed reassuring messages to their families waiting outside. From the surface, mine officials and digging crews gave the men a step-by-step account of rescue progress, and kept up a steady flow of encouragement.

H. C. McCollum, vice president in charge of underground operations for Peabody Coal Company, described the incident as "a revelation on what communications can achieve in rescue work."

"This was one case where silence definitely was not golden," Mr. McCollum said. "First, our ability to talk to the men gave direction and speed to our rescue operations. We knew they were alive; we knew the area where they were trapped;

and we had the advantage of their observations on conditions in that section of the mine.

"Second, the effect on the morale of everybody was remarkable, particularly on the spirits of the men below and their families above. Also, the rescue crews, hearing the voices of their fellow workers underground, worked all the harder and faster to free them."

The communication system employed in the Ken Mine rescue was an M-S-A MinePhone, a two-way electronic unit operated by current taken directly from the mine trolley. Representatives of Mine Safety Appliances Company, Pittsburgh, producer of the Mine Phone, were at the mine shortly after the roof fall occurred to provide technical

assistance and additional equipment required.

- The new Page Kwik-Weld units are designed to reduce maintenance costs, minimize down-time and afford greater production efficiency. The unique "V" slot design permits repairs for any dragline chain. Available in end links, pear-shaped end links, ring and center repair links. The thin section of the link is easily cut, removed and hooked into the chain. Placing the lug back into place and welding with a low hydrogen rod, provides a permanent chain repair without rivets, bolts or pins. The smooth repair link is as strong . . . if not stronger than the original unit. An AWS class 7018 rod is used. Stainless steel rods are not required. The



repair units afford the features of flat inner contact surfaces for the hitch pin and a contour inner surface for maximum wear on the contour of the chain link. Links available for all standard chain sizes.



### JEFFREY CHAINS and SPROCKETS

### DIAMOND ROLLER CHAINS

**MAC WHYTE  
WIRE ROPE**

**BRAKE  
LINING**

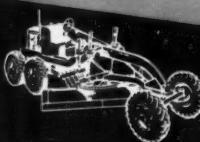
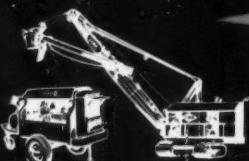
**NORTHEASTERN INCORPORATED**

321 Cherry Avenue N. E.  
GL 6-7333 Canton, Ohio

75 Maysville Avenue  
GL 2-3602 Zanesville, Ohio

For the best in all types of mining equipment...

SEE **Highway** FIRST!



rugged equipment for tough jobs...



Lima 2400 at C & K Coal Co., Parker.

AA-9024

**Highway**



**HIGHWAY EQUIPMENT COMPANY**

6465 Hamilton Ave. • Pittsburgh 6, Pa.

40 Hoover Ave. • Du Bois, Pa.

● The need for automation in industry has created a need for instrumentation systems which would permit automatic control functions and transmit the information long distances.

To aid in the design of new weighing systems, Streeter-Amet Company has prepared a booklet entitled "Ametron Electronic Scale Instrumentation".

This booklet explains flexibility of these components in various combinations, to detect, record and indicate direct physical quantities, as well as perform automatic control functions and transmit the information long distances.

It contains valuable information on basic instrumentation and accessories which are available to industry so they may achieve full automation in instrumentation systems for industrial processes.

The booklet also contains an instrumentation chart showing various combinations of transducers, applications, basic instruments, and accessories. Streeter-Amet Company, Grayslake, Ill.

● A new ice melter, said to be more economical to use and to possess substantially greater active bulk than other products employed for the same purpose, is announced by Chem Industrial Co.

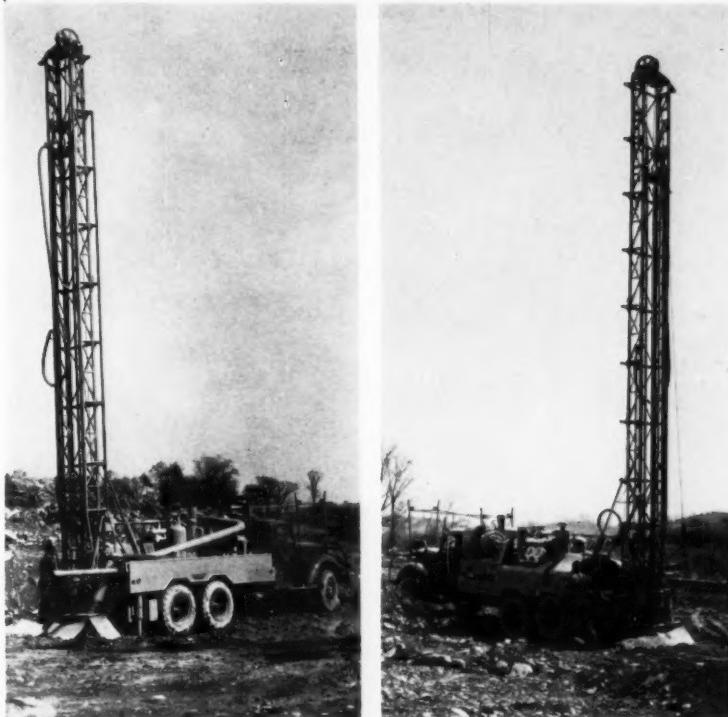
Called Melt "Extra", it is reputed to be made of special aerated crystalline chips. These generate heat immediately upon contact with ice and snow. Because Melt "Extra" provides 35 to 40% more covering capacity than regular pellet type chemical melters, it is claimed to afford large savings in material required for the winter.

New Melt "Extra" is pure white. The manufacturer advises that it will not discolor or damage any surface upon which it is used. Applied by hand, scoop, shovel or spreader, it leaves no messy residue due to track into buildings.

Melt "Extra" is packaged in 100-200-300 lb. polyethylene-lined fiber drums. Ton lots are shipped in 80-lb. bags. For further details, request form ME, Chem Industrial Co., Brooklyn 9, Ohio.

## DAVEY® Rotary Drills

### cut coal drilling costs!



Davey Model 8-MA at U.S. Coal Co., Holloway, Ohio.

For more economical, faster drilling . . . increased production at reduced costs, leading strip operators rely on Davey.

Suitable for mounting on any make of truck, Davey Rotary Drills move fast between blast holes . . . are ideal for low cost core drilling with air . . . easy to set in drilling position.

Daveys are offered in 8 different truck-mounted models—air blast, mud pump or combination types. Rated capacities to 3,500 ft. Features include choice of power take-off or separate power unit operation, automatic hydraulic feed with manual override, heavy-duty rotary table and rugged tubular box-type mast. Tractor mounted drills also available.

A-232A

*Write for Bulletin E-702S!*

## DAVEY

pioneers of  
"air-cooled air"



Portable Compressors



Auto-Air  
Compressors

## DAVEY COMPRESSOR CO.

Kent, Ohio

Air Tools



Stationary  
Compressors



Rotary Drills



New M-S-A Clearvue Facepiece

● A completely new facepiece for gas masks, hose masks, air line respirators, and demand breathing apparatus has been developed by Mine Safety Appliances Company, Pittsburgh.

Called the M-S-A Clearvue, the new facepiece features a large single lens, which is readily replaceable. The facepiece is designed to eliminate fogging of the lens, and has an improved speaking diaphragm, and built-in accommodation for prescription glasses. It will be incorporated in virtually the entire line of M-S-A masks, air line respirators, and demand breathing apparatus.

The "wrap around" lens assembly can be replaced quickly in the field. Formed wire fasteners can

be removed and re-used for installation of the new lens. Uniform tension of the fasteners maintains seal around the lens periphery, and prevents loosening or shifting.

Inspired air is directed over the lens surface by a ducting arrangement and moist exhaled air is diverted by means of a system of baffles to prevent lens fogging.

The Clearvue facepiece has also been designed to provide, for the first time in such equipment, full accommodation for prescription glasses. An optional kit is available for precise fitting of prescription glasses with normal lens size. Exact positioning of temples within the facepiece maintains seal and prevents possible leakage.

A new type of speaking dia-

phragm is featured exclusively with the Clearvue facepiece. For compactness, the exhalation valve is integrated with the housing of the diaphragm. The strong mylar diaphragm can be easily replaced.

### HEAVY EXCAVATION EQUIPMENT

**Draglines, Shovels, Cranes, Drills, Trucks**

15-W Bucyrus-Erie Elec. Drag, 215', 13 yd.  
9-W Bucyrus-Erie Elec. Drag, 160', 11½ yd.  
9-W Bucyrus-Erie Diesel Drag, 200', 9 yd.  
7-W Bucyrus-Erie Elec. Drag, 140', 7 yd.  
7-W Marion Diesel Drag, 140', 7 yd.  
7400 Marion Diesel Drag, 175', 13 yd.  
625 Page Diesel Drag, 150', 10 yd.  
621-S Page Diesel Drag, 125', 7 yd.  
200-W Bucyrus-Erie Diesel Drag, 125', 6 yd.  
5-W Bucyrus-Erie Diesel Drag, 100', 6 yd.  
2400 Lima Dragline, 130', 5 yd.  
4500 Manitowoc Drag, 120', 5 yd.  
120-B Bucyrus-Erie Elec. Drag, 115', 5 yd.  
111-M Marion Drag, 100', 4 yd.  
1601 Lima, 4 yd., Shovel/Drill  
3500, 3500 & 3000 Manitowoc Cranes  
5560 Marion 26 yd. Elec. Shovel  
550-B Bucyrus Erie 25 yd. Elec. Shovel  
750-B Bucyrus-Erie 20 yd. Elec. Shovel  
5480 Marion 18 yd. Elec. H. L. Shovel  
151-M Marion 7 yd. Elec. Shovel  
170-B Bucyrus-Erie 6½ yd. Elec. Shovel  
4161 Marion 6 yd. Elec. Shovel  
2400 Lima 4½ yd. H. L. Shovel  
120-B Bucyrus-Erie 4 yd. Elec. Shovel  
4500 Manitowoc 5 yd. H. L. Shovel  
111-M Marion Standard & H. L. Shovels  
3500 Manitowoc Standard & H. L. Shovels  
54-B Bucyrus-Erie Standard & H. L. Shovels  
Large selection of smaller Shovels and  
Draglines available

Model T-650 Reich Truck Mounted Rotary and  
Down-The-Hole Drill  
McCarthy & Compton Coal Auger Drills  
Euclid Trucks, Truck Cranes, Dozers,  
Attachments

### FRANK SWABB Equipment Co., Inc.

313 Hazleton Nat'l Bank Bldg.  
Hazleton, Pa. GLadstone 5-3658

### AUGERS

SUBJECT PRIOR SALE

#### — USED - A-1 CONDITION —

1—Model 630-36 McCarthy: Full Hydraulic Controls Self Moving Jacks - Skids: GMC Diesel: 100 Feet Six Foot Auger Sections: **FOB Knoxville: \$27,500**

1—Model 1016-30 McCarthy: Full Hydraulic Controls Cummins Diesel: Self Moving Jacks - skids: A-351 Self Propelling Conveyor.  
**FOB Knoxville \$36,500**

### Nixon Mach'y & Supply, Inc.

4717 Clinton Pike Knoxville, Tenn.  
Phone MUtual 7-1601

### SALEM "HERCULES" AUGERS FOR ELECTRIC DRILLS

Made to Withstand High Drilling Speed Whip And Torsional Strain Of Electric Drills.



Drills holes faster — Will not snap off shank or chip points — Outlasts four or five ordinary augers.

THE SALEM TOOL COMPANY

EDgewood 7-3416

SALEM, OHIO, U.S.A.

## NO GIMMICKS      NO GIVE-AWAYS

— THE TRUTH IS —

We're Overstocked on Mining Equipment. We will make you the most attractive proposition on the Best and latest type of used Mining Equipment on the Market. See J. T. FISH first!

WE BUY—SELL—TRADE

### JOY EQUIPMENT—REBUILT

- 3—Joy 14-BU Loaders, low pedestal, 7AE
- 2—Joy 14BU Loaders, medium pedestal, 7RBE.
- 4—Joy 14-BU 3PE Loaders.
- 6—12BU10E Joy Loaders complete with Piggy Backs.
- 2—Joy 12BU Loaders, 9E, latest type.
- 1—Joy 20BU Loader, latest type.
- 2—Joy 11BU Loader, latest type.
- 1—Joy 8BU Loader, 34" overall height.
- 2—Joy 8BU Loaders, 220 volt AC.
- 1—Joy curved Bar Head, complete.
- 6—Reliance 24-J Motors, 7½ H.P.
- 20—9-J Motors, 4 H.P.
- 2—Goodman 660 Loaders on Crawlers 440 volt DC, like new.
- 1—Goodman 660 Loader on Crawlers, excellent 250 V. DC.
- 1—Goodman 665 Loader on Crawlers, latest type 250 V. DC.
- 1—Goodman 865 Loader 26" hi. Rebuilt. 250 V. DC.
- 4—Joy 6SC Shuttle Cars, rebuilt.
- 3—Joy 6SC Shuttle Cars, latest type.
- 1—Joy 5SC Shuttle Car, Excellent
- 2—Joy 32E5 Shuttle Cars.
- 2—Joy 32E10 Shuttle Cars, rebuilt.
- 2—Joy 32E15 Shuttle Cars, rebuilt.
- 4—Joy 32E16 Shuttle Cars, rebuilt.
- 2—Joy 42E16 Shuttle Cars, rebuilt.
- 1—Joy CD-22 Drill, like new.
- 6—Joy T-2 low pan Crawler Trucks.
- 1—Joy T-2 6 low pan Crawler Truck with reel.
- 2—Joy T-1 Standard Crawler Trucks, 220 AC.
- 1—Joy T-1 Standard Crawler Truck, 250 DC.
- 2—Goodman low pan Crawler Trucks, like new latest type.
- 4—Joy 11-B Cutting Machines, like new, 35 and 50 H.P.
- 1—Joy 7-B Cutting Machine, like new, 250 volt DC.
- 2—Goodman 212 Cutting Machines, 19" high.
- 4—Goodman 312 Cutting Machines, 17" high.
- 3—Goodman 412 Cutting Machines, 19" high.
- 1—Goodman Machine on Crawler, 31" high. All hydraulic.
- 6—Goodman 512 Machines with Bugdusters.
- 2—Goodman Hydraulic 512 Cutting Machines with Bugdusters.
- 1—Lee Norse low vein Machine Carrier on rubber.
- 1—Jeffrey 70 URB rubber tired Cutter. Universal head, perfect condition.
- 1—Joy 11RU Rubber Tired Cutter with bugdusters. Universal heads, like new. 250 V. DC.
- 2—Joy 10RU rubber tired cutters. Universal head, 220, 440 volt AC, perfect.
- 6—7AU's on track. Universal head.
- 2—Jeffrey 29UC Cutting Machines, Universal head, cuts anywhere in seam, 38" high, on Crawlers 250 volt DC.
- 1—Jeffrey 29LC on Crawlers, rebuilt.

### LOCOMOTIVES

- 1—Goodman 6 ton, 91-A, 27" high, armor plate frame
- 2—Jeffrey 13 ton, type MH-110, 36", 42" and 44" Ga.
- 2—Jeffrey, 10 ton, type MH-110, 42" and 44" Ga.
- 2—Jeffrey, 10 ton, type MH-78, 42" & 44" Ga.
- 2—Goodman 8-30 and 10-30 Locomotives, 26" above rail.
- 1—Jeffrey MH-124, 6 ton, 24" overall height.
- 2—Jeffrey, 6 ton, type MH-88, 42", 44" and 48" Ga.
- 4—Jeffrey, 8 ton, type MH-100, 2½" armor plate frames.
- 1—Jeffrey, 6 ton, type 2186, 22" above rail.
- 3—Jeffrey, 4 ton, type MH-96, 42", 44" and 48" Ga.
- 1—G.E., 4 ton, type 825 Locomotive, 22" high.
- 10—G.E., 6 ton, types 801, 803, 821 Locomotives, 42", 44" and 48" Ga.
- 1—G.E. 8 ton, type 822 Locomotive, 44" Ga.
- 3—G.E. 10 ton, type 809 Locomotives, 42", 44" and 48" Ga.
- 2—Goodman, type 33, 6 ton, 44" and 48" Ga.
- 3—Westinghouse, type 902, 4 ton, 42" and 48" Ga.
- 2—Atlas Battery Locomotives, 36" Ga.
- 1—Atlas Trolley Locomotive, 4 ton, 24" high.
- 2—Westinghouse, type 904, 6 ton, 44" and 48" Ga.
- 2—Westinghouse, type 906, 44" and 48" Ga.
- 2—Westinghouse, type 907, 10 ton, 44" and 48" Ga.
- 8—Jeffrey MH-78 Locomotive Units, cheap.
- 4—Jeffrey MH-88 Locomotive Units, real bargains.
- 6—Jeffrey MH-100 Locomotive Units, reasonable.

- 3—Plymouth Diesel Locomotives, 8 and 10 tons, 42" and 44" Ga.
- Locomotive Trucks and Spare Armatures for all the above.

### TIPPLE EQUIPMENT

- 5—Complete Tipplers, 3 to 5 track, steel and wood.
- 3—Cleaning Plants, 1 Ea. McNally, Roberts and Schaefer, Jeffrey, Washers and Airflow Tables.
- 4—complete Aerial Trams for coal or refuse.
- 3—complete Rope and Button Lines.
- 2—Monitor Lines complete with Drums, excellent.
- 3—Allis-Chalmers 5' x 12' Low-Head Vibrators.
- 2—Allis-Chalmers 5' x 12' Ripple Vibrators.
- 1—Allis Chalmers 4x12 Low-Head Vibrator
- 1—Robins Gyrex Vibrator 4x10.
- 10—Belt and Apron type Loading Booms.
- 6—Shaker Screens
- 1—Robins Car Shakerout.
- 20—Crushers, various sizes.
- Feeders, Belt and Drag Conveyors, Car Retarders, etc.

### CUTTING MACHINES

- 2—Joy 10RU rubber tired cutters, Universal head, 220/440 volt A.C. Perfect.
- 1—Joy 11RU, rubber tired Cutter, 250 V. DC.
- 1—Jeffrey 70 URB Cutter, rubber tired, Universal Head, low vein.
- 2—Jeffrey 29UC Universal Machines on Crawlers.
- 1—Goodman on Crawlers, 31" overall height.
- 1—Baby Goodman 312's, rebuilt, 250 Volt DC.
- 2—Goodman 212 Cutting Machines, 19" high.
- 4—Goodman 312 Cutting Machines, 17" high.
- 3—Goodman 412 Cutting Machines, 19" high.
- 6—Goodman 512's with Bugdusters, like new.
- 4—Goodman 512's, rebuilt, or as removed from service.
- 3—Goodman 112's 220/440 volt AC.
- 1—Joy 7-B Cutting Machine, 250 volt DC.
- 4—Joy 11B Cutting Machines, rebuilt.
- 35 and 50 H.P.
- 6—7 AU's, on track, Universal head.
- 10—Goodman 12AA's and 112AA's, 250 volt DC.
- 2—Goodman 324 Slabbers.
- 2—Goodman, 724 Slabbers.
- 2—Goodman, 84 Slabbers.
- 6—Jeffrey 35L's, like new, 17" high.
- 2—Jeffrey 35L's on low vein trucks.
- 15—Jeffrey 35B's and 35BB's.
- 2—Jeffrey 29B's on track.
- 2—Jeffrey 29C's, track mounted.
- 2—Jeffrey 29L's on Crawlers. Excellent.
- 3—Sullivan CE7, 220 volt AC.

### CONVEYORS

- 2—Robbins 36" tandem drives with or without structure.
- 2—Joy 30" Underground Belt Conveyors, 500' to 2000' each. Excellent.
- 1—Goodman 97-C, 30" Conveyor, 1500' long.
- 2—Goodman 97-C, 26" Conveyors, 1,000' long.
- 3—Robbins 30" Belt Conveyors, 200' to 2000'.
- 4—Jeffrey 52-B, 30" Drive and Tail Assembly, complete.
- 2—Joy MTB 30" Drive and Tail Assembly, complete.
- 3—Goodman 97 HC 30" Drive and Tail Assemblies, complete.
- 4,000' Conveyor Belt, 36".
- 8,000' Conveyor Belt, 30".
- 4,000' Conveyor Belt, 26".
- 8—Jeffrey 61AM 12" Chain Conveyors, 300'.
- 2—61WH Elevating Conveyors.
- 2—61WH 15" Room Conveyors, 300'.
- 2—Joy 15" Room Conveyors, 300'.
- 2—Joy 20" Conveyors, 300'.
- 4—Joy Ladel 17 Shakers.
- 10—Goodman G-12½ and G-15 Shakers.
- 3,000' Goodman 18" Flat Belt Conveyors, tandem drive, any length, perfect.
- 2,500' Goodman 20" Flat Belt Conveyors, tandem drive, any length, perfect.

### CONVERTERS AND DIESEL PLANTS

- 1—300KW Portable Rectifier, 3 card unit.
- Excellent.
- 2—500KW G.E. Stationary Rectifiers
- 4—1,000KW Stationary Rectifiers.
- 2—100KW, G.E. TCC-6's, 275 volt, Rotary Converters
- 1—150KW, G.E. HCC-6, 275 v., Rotary Conv.
- 1—150KW, 6 phase, Allis Chalmers Rotary Converter, 275 V. DC.
- 2—200KW, G.E. HCC-6 Rotary Converters, 275V. DC. Newly rewound.
- 3—300KW, G.E. HCC-6 Rotary Converters, 275 V.
- DC, like new.
- 2—300KW Westinghouse, 6 phase, Rotary Converters, 275 volt DC.
- 2—500KW Westinghouse Rotary Converters, 275 volt DC.
- 2—250KW Westinghouse Rotary Converters, 275 V. DC. Newly rewound.
- (all the above with 3900/13000 and/or 200/400 primary transformers)
- 2—100 KW MG Sets, 275 volt DC.
- 2—150KW MG Sets, General Electric and Westinghouse 275 V. DC.
- 1—216 MG Set, Westinghouse, rebuilt, 275 V. DC.
- 1—200KW MG Set, General Electric, perfect, 275 volt DC.
- 2—300KW G. E. MG Sets, like new.
- 1—300KW Westinghouse, 600 volt, MG Set, rebuilt.
- 2—300KW Westinghouse, 600 volt, 6 phase, Rotary Converters.
- 2—300KW Westinghouse, 600 volt, DC, 6 phase, Rotary Converters.
- 2—300KW HCC-6 Rotary Converters, 6 Phase, 600 volt DC.
- 1—GMC 471 Diesel with 60 KW, 250 volt DC Generator.
- 1—GMC-671 Diesel with 75 KW, 250 volt DC Generator.
- 1—Cummins 125 KW, Diesel with 250 volt DC Generator.
- 1—Allis Chalmers Natural Gas Engine with 100 KW Generator, 275 volt DC.
- Boilers, like new, 500 H.P.

### LOADING MACHINES

- 6—Joy 12BU with Piggy-Back Conveyors
- 16—Joy Loaders, 8BU, 11BU, 12BU, 14BU, 20BU.
- 2—Goodman 865 Loaders, 26" on Crawlers.
- 1—Goodman 665 Loader on Crawlers.
- 2—Goodman 660 Loaders, 440 volt AC perfect.
- 1—Goodman 600 Loader, on Crawlers.
- 1—Goodman 460 rebuilt, on track.
- 2—Jeffrey 61 CLR's, on rubber, 26".
- 3—Jeffrey L-500 Loaders.
- 2—Myers Whaley, No. 3 Automatic Loaders
- 2—Clarkson Loaders, 26" above rail.

### MISCELLANEOUS

- 5—Complete Tipplers, 3 to 5 Track. Wood and Steel.
- 20—Jeffrey Molyvors on rubber tires.
- 1—¾ Yard Shovel and Back-Hoe.
- 1—¾ Yard Crawler Crane.
- Battery Supply Tractors, rubber tired.
- 1—Cantrell Air Compressor on rubber tires.
- 10—Air Compressors, 1 H.P. to 40 H.P.
- 2—Joy self propelled rubber tired compressors, 240 cu. ft.
- 2—Acme self propelled rubber tired compressors, 130 cu. ft.
- 40 Mine Pumps, all types.
- 1—Differential 40 Passenger Man Trip Car.
- 6—MSA Rock Dusters.
- 2—Phillips, Carriers, 44" and 48" Ga.
- 1—Barber Greene self propelled Bucket Elevator. Pipe, Plastic, Steel, Transit, all sizes 1" to 6".
- 300 Mine Cars, drop bottom, 42" Ga.
- 100 Mine Cars, 18" high, end dump, 44" Ga.
- 300 Mine Cars, end dump and drop bottom, 20" high, 48" Ga.
- 1—10 ton Mine Car Scale with Recorder.
- 15—Brown Fayro HKL and HG Car Spotters.
- 1—Brown Fayro Hydraulic Car Spotter.
- 1—12 ton Differential Slate Larry.
- Incline Hoists, 25 to 50 H.P.
- 1—Jeffrey 5' Aerodyne Fan, like new.
- 1—Jeffrey 6' Aerodyne Fan.
- 1—Jeffrey 8' Aerodyne Fan.
- 2—Storage Tanks, 4,000 Gallons.
- 1—Storage Tank, 10,000 Gallons.
- 10,000 Five Gallon G. I. Cans, screw lids.
- 2,500 tons Relaying Rail, 25 lb., 30lb., 40lb., 50lb., 60lb., 70lb.
- 30—tons Copper—4/0 and 9 Section Trolley 1/0, 2/0, 4/0 Stranded.
- Thousands of feet of rubber covered three conductor cable. All sizes.
- 300 Transformers from 1 to 300 KVA, 110 to 13,000 primary volts.
- 400 Electric Motors, 3 to 250 H.P.
- Huge stock of Mine Supplies.
- 600 MSA Mine Lamps, Chargers, etc.
- 1—Fricke Saw Mill Complete.
- Thousands of Other Items.

WE OWN WHAT  
WE ADVERTISE !!

**J. T. FISH**

PHONE PL. 2-4400, LOGAN, W. VA.

# NEWS ABOUT THE DUMP BODY BUSINESS

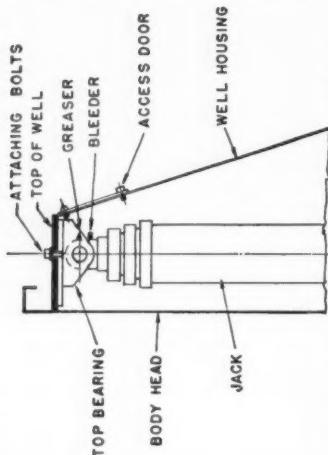
Increase Your Earning Power with MARION'S New Front End Hoist For 8, 9, 10 Foot Bodies

Another rugged and competitively priced Marion hoist is now available in three models for 8, 9 and 10-foot bodies. Outstanding features incorporated in the hoist provide time and performance saving benefits for all users.

- The method of attaching the cylinder to the body speeds up installation and allows fast, easy detachment for any servicing in the field (see diagram).
  - The deep oil reservoir, mounted on the side, provides a quieter, cooler, more efficient hydraulic system and eliminates the danger of drawing air into the system.
  - Weight savings from 65 to 270 pounds.
  - Fast dumping speed.
  - Pump with safety relief valve.
- Write for a bulletin covering the three models, F-5137-65-72-82.

**MARION METAL PRODUCTS CO.**

Marion, Ohio, U.S.A.



The top plate is connected to the top of the cylinder before the body is installed. Then as the body is let down, the cylinder will guide itself into place in the cylinder housing. The body is then secured from the outside at the top by two bolts that fasten the body to the top plate.



## ADVERTISER'S INDEX

OCTOBER, 1959

Beckwith Machinery	2nd and 3rd Cover, 2, 3, 13 to 16
Davey Compressor Co.	25
Fish, J. T.	27
Highway Equipment Co.	Front Cover, 21, 24, Back Cover
Jeffrey Manufacturing Co.	6
Lee Supply Co.	4
Marion Metal Products Co.	28
Maximon Machine Company, Inc.	4
Nixon Mach'y & Supply, Inc.	26
Northeastern Incorporated	23
Ohio Machinery Co.	13 to 16
Paulick, P. R.	28
Salem, Tool Company, The	26
Swabb Equipment Co., Frank	5, 26
Walker Machinery Co.	13 to 16
Woodings Inc., Robert T.	4

### STATEMENT OF OWNERSHIP

COAL MINING is published monthly at 4575 Country Club Dr., Pittsburgh 36, Pa. and is entered as second-class mail at Erie, Pa.

Publisher, P. F. Jasik, 4575 Country Club Dr., Pittsburgh, Pa.; Editor, P. F. Jasik, 4575 Country Club Dr., Pittsburgh, Pa.; Managing Editor, P. F. Jasik, 4575 Country Club Dr., Pittsburgh, Pa. Business Manager, P. F. Jasik, 4575 Country Club Dr., Pittsburgh, Pa.

The owner is P. F. Jasik, 4575 Country Club Dr., Pittsburgh, Pa., and there are no other stockholders, bondholders, or mortgagees.

P. F. Jasik  
Sworn and subscribed before me this 12th day of October 1959.  
Leo M. Joyce  
Notary Public

**P. R. PAULICK**  
Consulting Mining Engineer

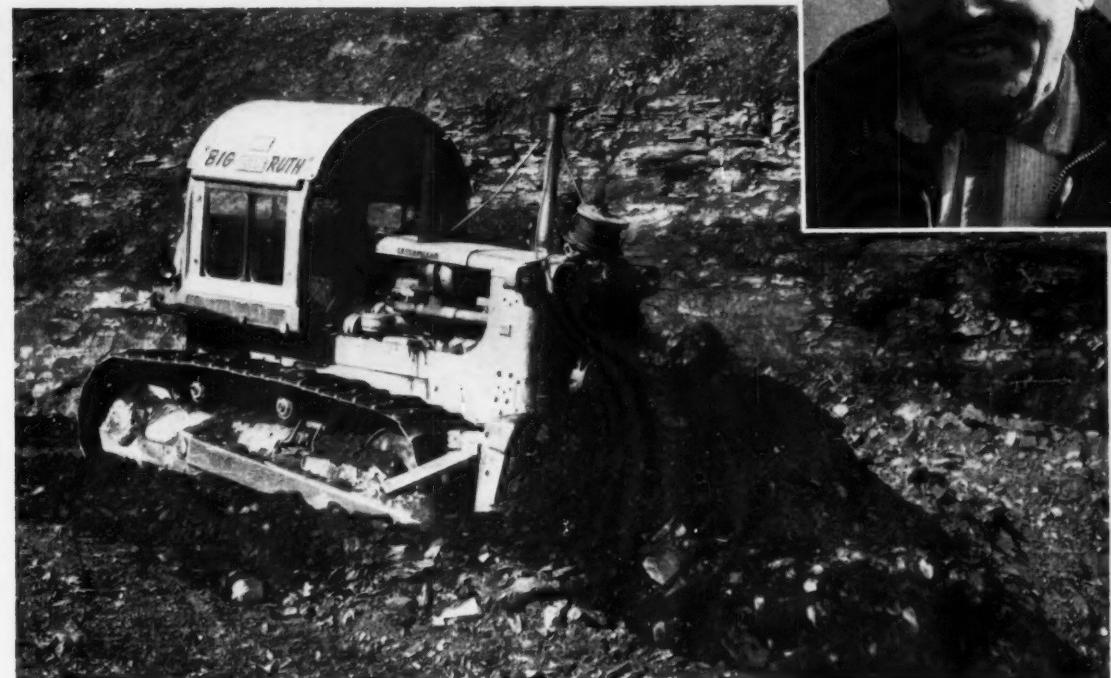
### Specializing: —

Cost Control ----- Management  
Modern Mine Mechanization Systems  
Economic Surveys ----- Appraisals  
Domestic ----- & ----- Foreign Work

2505 Windgate Road  
Bethel Park, Pa.

*"When I buy my next tractor  
... it will be another CAT\*D9"*

S. C. Monnie  
Glen Campbell, Pa.



*"...we've worked this D9 over 10,000 hours with  
the original undercarriage . . . except for one roller!"*

When a bulldozer works 10 hours a day, six days a week for over three years . . . still has the original track and thirteen of the original 14 rollers, the owner has a right to be proud of his maintenance and satisfied with his purchase. It's also a good example of the quality built into Caterpillar products that keeps downtime to a minimum and maintenance costs at a realistic level. This Caterpillar Series D, D9 Diesel tractor owned by S. C. Monnie of Glen Campbell, Pa. works in clay, rock and shale and moves from 3,000 to 5,000 yards of dirt a day. On comparable jobs of the same owner, this D9 strips to the coal in one pit while a 3½ yard dragline works another. The D9 pit is loading out twice the amount

of the dragline pit. Here is proof of production!

Combine high performance and low upkeep in one unit and you have a machine that's worth every penny of your investment. Consider the many advantages of the 320 Horsepower Caterpillar D9, available in either direct or torque converter drive. Learn why these giants of earthmoving are preferred on stripping sites, highway construction projects and other earthmoving applications.

Let us give you all the facts so you can figure capacity, speed and quality of the rugged Cat D9 tractor on your own job. A card or phone call to our nearest location will bring you all the necessary information . . . no obligation!

\*Both CATERPILLAR and CAT are registered trade marks of Caterpillar Tractor Co.

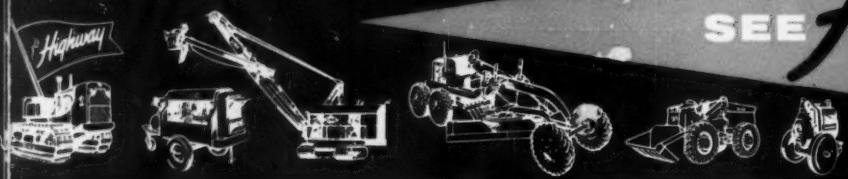
**BECKWITH**  
**MACHINERY CO.**

6550 Hamilton Avenue • PITTSBURGH • Phone: MOnrose 1-6900

BRADFORD, PA. • 361-369 Congress St. • Phone 3166  
CLEARFIELD, PA. • Old Town Rd. • Phone 5-9635  
ERIE, PA. • 1356 E. 12th St. • Phone 4-2494  
SOMERSET, PA. • Rt. 219 N. • Phone Somerset 6533  
CLARKSBURG, W.VA. • U.S. Rt. 20 • Phone Main 4-5476

*For the best in all types of mining equipment...*

SEE **Highway** FIRST!



**rugged equipment for tough jobs...**



Lima 2400 at Snyder Coal Co., Cowansville.

AA-222

**Highway**



**HIGHWAY EQUIPMENT COMPANY**

6465 Hamilton Ave. • Pittsburgh 6, Pa.  
40 Hoover Ave. • Du Bois, Pa.

6880 Hamilton Avenue • PITTSBURGH • Phone: MOnroese 1-6900